

**Guidelines for Integrating Gender
Analysis into Biodiversity Research**



**Sustainable Use of Biodiversity
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TABLE OF CONTENTS

1.0 Rationale for Integrating Gender Analysis into Biodiversity Research	2
2.0 Gender and Gender Analysis: Key Concepts	4
3.0 Methodology for Gender Analysis in Biodiversity Research: The project cycle	7
3.1 Proposal Stage: Integrating Gender Analysis into Biodiversity Research	8
3.2 Gender-Based Data Collection, Interpretation and Analysis in Biodiversity Research	10
3.2.1 Introduction: Thinking About Gender Analysis in Research	11
3.2.2 Stage I - Examining Gender Differences in Biodiversity Research: Gender-disaggregation of data	12
3.2.3 Stage II - Establishing Research Priorities: Deciding which gender differences are significant	14
3.2.4 Stage III - In-depth Examination of the Significance and Meaning of Gender Differences	16
3.2.5 Data Interpretation and Analysis: Research as an iterative process	19
3.3 A Selection of Research Tools for Gender Analysis	20
3.3.1 Tool No.1 Gender Issues List	21
3.3.2 Tool No.2 Gender Activity Analysis	25
3.3.3 Tool No.3 Mapping Gendered Spaces	28
3.3.4 Tool No.4 Gender Benefits Analysis	31
3.3.5 Tool No.5 Matrix Ranking	34
3.3.6 Tool No.6 The Triads Test	37
3.4 Gender Monitoring and Evaluation in Biodiversity Research	40
4.0 Training of Trainers: Literature Resources	43
Bibliography	44

1.0 RATIONALE FOR INTEGRATING GENDER ANALYSIS INTO BIODIVERSITY RESEARCH

The International Development Research Centre (IDRC) seeks to enhance the equitable and sustainable use of biodiversity through support to research from the perspective of those who use, manage, and benefit from biodiversity. This challenge has significant gender dimensions because women, who play an increasingly important role in biodiversity management, are among the poorest and most disempowered people in many Southern societies. Research concerned with the equitable and sustainable use of biodiversity must consequently address the inequities between women and men associated with access to resources and knowledge.

The Sustainable Use of Biodiversity (SUB) program initiative of IDRC does not seek to “add women” to its current activities, but rather to integrate gender analysis into its research on biodiversity. This implies an understanding of biodiversity management based on diverse experiences and the distinct knowledges of many different groups. The gender divisions of rights, responsibilities, work, and knowledge is taken as a point of departure to examine and explain the multiple roles of women and men as resource users/managers. Where men are preferentially drawn into cash crop production, local wage labour, and the urban work force, women are increasingly responsible for the use and maintenance of complex rural landscapes and the plant and animal life they support (Rocheleau 1995). A rising cost of living and male urban migration has also meant that many rural women are becoming increasingly involved in subsistence and commercial production as well as much of the community and environmental ‘maintenance’ work formerly shared by women and men. Women are crucial actors in biodiversity management in their multiple roles as farmers, herders, forest gatherers, primary health care givers, drawers of water, food processors, market vendors, selectors and preservers of seeds, soil conservationists and keepers of the natural and built environment. Biodiversity management therefore needs to be located not only in the gendered spaces of farms, forests, rivers, and streams, but in the gendered spaces in and around the home (where food and medicinal plant processing and preparation is undertaken, and where plant and tree species are often maintained in home gardens), at the market where women in particular buy, sell, and exchange food, seeds, and plant products, and within local organizations and social networks where women and men work to expand their channels of access to biological and social resources.

The identities and affiliations of rural people can also affect access to and control over labour, land, plant and animal species, and their products. Laws, customs, and cultural practices create differential patterns of access to biological resources on the basis of gender, ethnicity, locality, age, and so on. Gender affects not only patterns of access to resources, but the ability of women and men to negotiate their interests and expand their rights within a broader system of gender relations (of power) operating at the level of household, community, and state. The ability of different social groups to access, control, and strategically use biological resources has significant implications for food, nutritional, and health security, and the capacity of resource users to manage agricultural, aquatic, and forest-based diversity (Satheesh 1997).

Given the primacy of gender issues to the sustainable use of biodiversity, gender analysis needs to be integrated into all issues and levels of research. Gender analysis enables researchers to better identify and redress resource inequities between women and men which will ensure better local management and sustainable use of biodiversity.

2.0 GENDER AND GENDER ANALYSIS

KEY CONCEPTS

<i>Class</i>	Class refers to people's socio-economic positions in their society: class may be determined through access and/or control of resources and other assets, ownership, kinship, or through the possession of various attributes considered to be indicators of class in a particular society.
<i>Empowerment</i>	Empowerment is about people - both women and men - taking control over their lives: setting their own agendas, gaining skills (or having their own skills and knowledge recognized), increasing self-confidence, solving problems, and developing self-reliance. It is both a process and an outcome.
<i>Gender</i>	Gender is a culturally-specific set characteristics that identifies the social behavior for women and men and the relationship between them. Gender refers to social differences, as opposed to biological ones, between women and men that have been learned, are changeable over time, and vary widely both within and between cultures.
<i>Gender analysis</i>	Gender analysis is the systematic examination of the roles, relationships, and processes between women and men in all societies, focusing on imbalances in power, wealth, and workload. Gender analysis can also include the examination of the multiple ways in which women and men, as social actors, engage in strategies to transform existing roles, relationships, and processes in their own interest and in the interest of others.
<i>Gender contract</i>	A gender contract is a set of implicit and explicit rules governing gender relations which allocate different work and value, rights, responsibilities and obligations to women and men. The gender contract is subject to change, often through (re) negotiation of needs and interests, and redefinition of roles, rights and responsibilities between women and men, husbands and wives etc.. Renegotiation of the gender contract may involve conflict and contestation between women and men.
<i>Gender-disaggregation</i>	Gender-disaggregation entails the collection and separation of data and statistical information by gender to enable comparative analysis/gender analysis (should include sampling of both women and men).

<i>Gender division of labour</i>	The allocation of paid and unpaid work between women and men in private and public life.
<i>Gender mainstreaming</i>	Gender mainstreaming is the systematic integration of the respective situations, priorities, and needs of women and men in all policies, programs, and projects and with a view to promoting equality between women and men and mobilizing all general policies and measures specifically for the purpose of achieving equality by actively and openly taking into account, at the planning stage, their effects on the respective situations of women and men in implementation, monitoring and evaluation.
<i>Gender relations</i>	Gender relations refer to the relationship and unequal distribution of power between women and men which characterize any specific gender system.
<i>Gender roles</i>	Gender roles are due to social factors that influence or allocate activities, responsibilities, and decision-making authority to groups of people. Gender roles change, often spontaneously and sometimes quickly, as the underlying social, economic and technological conditions change. Social factors which underlie and sometimes reinforce gender differences include religious practices, ethnic or cultural attitudes, class or caste, the formal legal system, and institutional arrangements.
<i>Practical needs</i>	Practical needs can be defined as necessities which improve the condition of women and men in the short term. They generally include responses to inadequate living conditions regarding clean water, shelter, income, health care, etc.
<i>Production*</i>	Production refers to work done by both women and men for pay in cash or kind. It includes both market production with an exchange value, and subsistence/home production with actual use value, and also potential exchange value. For women in agricultural production this includes work as independent farmers, peasant wives, and wage workers.
<i>Reproduction*</i>	Reproduction includes a range of activities which include child-bearing/rearing responsibilities, and domestic tasks primarily, though not exclusively, done by women, required to guarantee the maintenance and reproduction of the labour force. It includes not only biological reproduction but also the care and maintenance of the workforce (male partner and working children) and the future workforce (infant and school-going children).

Strategic interests

Strategic interests refer to the relative status or position of women to men within society. They vary in each context and in relation to gender divisions of labour, resources, and power. Strategic interests tend to imply/require structural change over the long-term to address systemic discrimination. Strategic interests may include legal rights, increased decision-making, access to the means of production, and women's control over their own bodies.

NB. Definitions of terms without an asterisk drawn directly from:

One hundred words for equality: A glossary of terms on equality between women and men. European Commission: Employment and Social Affairs. January 1998.

* Definitions of terms drawn directly from:

Moser, C. 1993. Gender Planning and Development: Theory, Practice and Training. London: Routledge.

3.0 METHODOLOGY FOR GENDER ANALYSIS IN BIODIVERSITY RESEARCH: THE PROJECT CYCLE

How to use this methodology

The gender methodology section of this document is divided into three main sections, based on three stages of a research project: (I) proposal (ii) data collection, interpretation, and analysis (iii) monitoring and evaluation. This format is intended to guide and assist SUB team members and research partners in incorporating gender analysis in the initial design and formulation of a project, throughout project implementation, and at various assessment stages. Gender analysis is generally much more effective when it is viewed as integral to the research design, rather than a separate component. Organization of the methodology is as follows:

3.1 PROPOSAL

This section provides researchers with a list of relevant gender issues to be considered in the initial design and formulation of a research project. SUB team members will refer to the list in advising on possible avenues for gender analysis, and in assessing the overall quality of a project proposal as relating to socio-economic and gender analysis.

3.2 DATA COLLECTION, INTERPRETATION AND ANALYSIS

This section outlines three stages through which researchers are able to integrate gender analysis into the research process:

- Stage I - Examining Gender Differences in Biodiversity Research: Gender-disaggregation of data
- Stage II - Establishing Research Priorities: Deciding which differences are significant
- Stage III - In-depth Examination of the Significance and Meaning of Gender Differences

Each stage outlines how different methods (surveys, questionnaires, and PRA methods such as those outlined in section 3.3) can be used to explore gender issues and provides guidelines on how researchers can begin to think about and practically approach such issues throughout the research process.

3.4 MONITORING AND EVALUATION

Gender guidelines for monitoring and evaluation provide SUB team members with an overview of issues to be considered at intermittent times during or at the end of the project cycle. This section is organized according to the evaluation areas and issues outlined in the SUB Program Prospectus 1997-2000.

3.1 PROPOSAL STAGE:

INTEGRATING GENDER ANALYSIS INTO BIODIVERSITY RESEARCH

Objective

To provide SUB team members and research partners with an overview of gender issues related to agro-biodiversity and medicinal plants research to be considered in the design and formulation of a research project proposal.

Format

Gender issues are presented as questions and are organized by various components of a project proposal. Researchers will be provided with a copy of the gender issues list prior to or during the initial project design and formulation so that gender analysis can be integrated from the beginning of the project cycle. SUB team members will refer to the below list of gender issues in advising the possible avenues for gender analysis, and in assessing the overall quality of the project proposal as relating to socio-economic and gender analysis.

The below list is not inclusive and should not be used as a rigid tool. Not all issues are necessarily relevant to, or given the same weight within, all SUB research projects. SUB team members and research partners are encouraged to draw on those issues from the list that are relevant to and appropriate within a particular context. Similarly, SUB team members and research partners are encouraged to explore gender and biodiversity issues that are not found on this list. The bibliography on pages 44-46 can serve as a starting point for this.

Gender Issues List For Biodiversity Research Project Proposals

Problem, Background & Rationale

- < Does the proposal use broad references to “the community” or “the poor”?
- < Does the proposal differentiate within categories of “men” and “women” (e.g. by class, ethnicity, race, head-of-household, religion, age)?
- < How does the problem (subject for research) involve and affect women and men differently? What are the gender dynamics behind the problem?
- < Does this section detail the different constraints and needs of women and men?
- < Who was consulted and/or involved in identifying and describing the problem? Both men and women? What is their relationship to the project (e.g. target group, local organization, project team)?
- < Who is involved in the research design? Was a gender resource person consulted?

Objectives

- < Are gender dynamics included in the general or specific project objectives? Why or why not?
- < Is gender equity a specified objective? Why or why not?
- < Do the objectives specify between women and men? Other socio-economic groups (e.g. class, age, household headship, race, ethnicity, religion)?
- < Who are the intended beneficiaries? Do the project objectives make clear for whom the project benefits are intended? Why has this particular group been targeted?
- < How, specifically, will the project contribute to men’s and women’s increased empowerment?
- < Do any of the objectives challenge the existing or customary gender division of labour, tasks, opportunities, responsibilities and obligations? How?

Methodology

- < Does the methodology include gender analysis?
- < How exactly will gender-disaggregated data be collected during the course of the project?
- < Will a variety of methods be used (e.g. quantitative and qualitative) to examine gender differences?
- < Who will inform the data collection, interpretation, and analysis (e.g. local women/men, researchers)?
- < Is the research team able to adequately address relevant gender issues?
- < Are there any women on the project team? What are their roles and responsibilities as compared to the male team members?
- < Will there be need for consultation or collaboration with a gender resource person(s)?
- < At what stage of the research will a gender resource person be required?
- < What form should this consultation and collaboration take?
- < What role (if any) will men’s and women’s organizations play in the research process?

Institutional Linkages

- < What linkages will be made with men’s/women’s organizations?
- < Will all stakeholders be involved in gender analysis? How exactly?

Expected Outputs

- < How will conclusions and recommendations impact or change existing gender dynamics? Are these impacts or changes expected to be largely positive or negative? For whom are they to be positive or negative?
- < What are the (likely) short- and long-term affects of this research on the quality of life and gender

3.2 GENDER-BASED DATA COLLECTION, INTERPRETATION AND ANALYSIS IN BIODIVERSITY RESEARCH

Objective

To provide researchers with a systematic approach for integrating gender analysis into biodiversity research.

Format

This section is organized into three subsections which outline the ways in which researchers can begin to think about gender and how it relates to specific project issues, and the ways in which gender analysis can be integrated into research. This section draws upon specific methodological approaches and utilizes a range of methods or tools (outlined in greater depth in section 3.3) to illustrate how gender analysis may be integrated into three stages of data-collection and analysis in the research process. The three subsections are organized in the following way:

3.2.1 Stage I - Examining Gender Differences in Biodiversity Research: Gender-disaggregation of data

This section outlines why gender-disaggregated data is a critical component of any sound research methodology, and how researchers can adapt their existing skills and methods to collect gender disaggregated data regarding the activities, knowledges, priorities, and preferences of both women and men. The section illustrates how particular research tools (such as surveys, questionnaires and PRA methods) may be adapted to explore gender differences. Research tools outlined in section 3.3 are used as illustrations where possible.

3.2.2 Stage II - Establishing Research Priorities: Deciding which gender differences are significant

This section outlines why researchers need to establish their own, project-specific, research priorities for gender analysis. The section goes on to discuss how researchers can identify which gender differences are significant and most relevant to the issues being explored in their own research, and how research methods may be revised to explore key gender differences in greater depth.

3.2.3 Stage III - In-depth Examination of the Significance and Meaning of Gender Differences

This section outlines how researchers can begin to think about, and examine, the significance of gender differences. In this stage researchers are presented with four steps which can be integrated into the research: filling in gaps in existing data; examining detail, nuance and contradiction related to gender issues; examining the material and ideological dimensions of gender differences; and examining the implications of gender differences for biodiversity management.

3.2.1 Introduction:

Thinking about gender analysis in research

There are a number of different ways in which to think about and practically approach gender analysis in biodiversity research. This handbook presents gender analysis as an analytical tool that can be integrated into existing research methods and/or used as the foundation of a gender-based research approach which seeks to explore more fundamental questions about gender, society, and environment. Since the amount of time and resources available to the research teams vary, the approach used in this handbook is designed to provide research teams with a range of options for the integration of gender analysis into the project cycle.

This section begins by offering suggestions that enable researchers to integrate gender analysis into existing research methods (e.g. surveys, questionnaires, seasonal calendars etc.). In most cases, this involves the **gender disaggregation of data** collected, and the **sampling** of both women and men. Such skills enable researchers to explore many of the concrete expressions of gender roles and gender relations by documenting the **differences between women and men** in the activities they perform, how they perform them, the resources women and men have access to and use of, and the different kinds of knowledge possessed by women and men. Gender disaggregation of data and gender-based sampling represent the bare minimum needed for a sound research methodology. Such techniques benefit researchers limited by time and resource constraints or those who wish to introduce gender analysis on a limited scale.

Once data has been disaggregated by gender, the next step is to consider which differences between women and men are significant in the context of agricultural, aquatic, and forest-based biodiversity management. The second subsection provides guidelines to researchers for engaging in preliminary analysis of the data to determine which gender issues may be most relevant given the objectives of the research project and the ways to modify existing methods to explore gender issues in greater depth.

Gender-disaggregated data are useful for examining concrete expressions of gender roles and relations and how they relate to issues of biodiversity management. What such data do not reveal, however, are the underlying material, social and cultural mechanisms which mediate such gender differences. Gender differences have both material and ideological dimensions and material and ideological implications. While the material aspects of gender differences are often investigated, the ideological dimensions are not. The final sub-section outlines how researchers can begin to examine what particular gender differences mean by exploring briefly both the material and ideological dimensions of gender differences (e.g. through participant observation and in-depth interviewing), and the implications of such expressions for quality of life, biodiversity management, and environmental sustainability.

3.2.2 Stage I - Examining Gender Differences in Biodiversity Research: Gender-disaggregation of data

Why collect gender-disaggregated data?

Data collection procedures (surveys, questionnaires, etc.) are designed to elicit either qualitative or quantitative/statistical information about what people do, know, think and so on. In most societies however, women and men have different responsibilities related to work, possess knowledge of different things, and have different perspectives and priorities in daily life. Many such differences are crucial to issues of biodiversity use and management. Gender disaggregation of data is therefore a critical component of any sound research methodology, as it facilitates comparative/gender analysis of difference.

How to collect gender-disaggregated data

Gender analysis does not necessarily require that researchers reorganize their work by substituting one set of methods for another. Many of the existing research skills and methods used by researchers may be adapted by ensuring that data regarding the activities, knowledge, preferences, and priorities of both women and men are collected and recorded. While it is possible to gender-disaggregate data collected primarily from male informants, this generally does not form an adequate basis for gender analysis. **It is very important that researchers interact with, and speak to, both women and men** (researchers should avoid speaking only to household heads).

Using surveys, questionnaires, participatory rural appraisal, and other research methods researchers can collect gender-disaggregated data by sampling both women and men and recording the gender (and age, ethnicity, class where useful) on the data sheets. Some critical gender issues that researchers should attempt to explore are:

- < the different work-related activities for which women and men are responsible (see Research Tool no.2);
- < the range of resources that women and men are able to access, control, and use (see Research Tool no.4);
- < women's and men's relative participation in decision-making at the household and community level; and
- < women's and men's different daily priorities and preferences.

The collection of gender-disaggregated data reveals concrete expressions of gender roles and relations operating at the level of the household and community, and enhances research output. The following is an example of how a common PRA exercise, known as matrix ranking (also see Research Tool no.5) in agrobiodiversity may be adapted to collect gender-disaggregated data on farmers' preferences in plant varieties.

Research Example: Collecting gender-disaggregated data

A researcher conducts a matrix ranking exercise with two groups of ten male farmers. The exercise is designed to explore the qualities that farmer's look for in millet varieties used for planting. Survey data suggests that men rank particular plant characteristics higher than others. Men look for varieties that can be grown in a broad range of soil types, and varieties which have a high potential yield, store well, and which are good for beer brewing and beer taste.

The researcher then proceeds to conduct the exercise with a local women's group in order to compare and contrast the characteristics that women look for in millet varieties to that of men. Data from female participants suggests that women are interested in varieties that have a short cooking time, good meal quality, and food taste, varieties that are resistant to bird damage, and seeds that are easier to collect, process, preserve, and store.

The data suggests indicates women and men have different preferences regarding millet varieties. These gender differences reflect the local gender roles of women and men where men are responsible for many of the farm related activities (planting, harvesting etc.), while women are responsible for the processing and preparation of food, bird scaring on the farm, and seed selection, processing and preservation activities.

Gender disaggregation of data reveals a range of critical differences between the activities, resources, priorities, and preferences of women and men. Gender-disaggregation of data is not, however, the only step in gender analysis. At this point in the research process researchers are able to analyze, identify, and describe gender differences, but are unable to draw conclusions about why such differences exist and what they imply for agricultural, aquatic, and forest-based biodiversity management. The next stage of the research process requires that researchers identify which gender differences are significant and to establish a set of research priorities regarding which gender issues the team wishes to pursue in greater depth.

3.2.3 Stage II - Establishing Research Priorities: Deciding which gender differences are significant

Examining difference

The collection of gender-disaggregated data should be the first step in a larger process of integrating gender into research. Once the data have been collected they need to be organized in order for researchers to identify and examine patterns of difference between women and men. The use of data tables, although simplistic, is one way for researchers to visually arrange data in an organized format. For examples of data tables which correspond to different research methods refer to Research Tools No.2 through 6.

Once data have been organized, researchers need to examine what differences exist between women and men regarding, for example, activities related to work; types of access to, control, over and use of resources; and priorities and preferences in daily life. Researchers need to consider what such differences mean, and to what extent they are expressions of local gender roles and relations.

Which differences make a difference?

Researchers are likely to identify a number of differences between what women and men do, what they know, what they own, what they prefer, and so on. Research teams do not have the time, resources, or capacity to explore all gender issues in great detail. Establishing research priorities early on will enable researchers to explore a selection of relevant gender issues in considerable depth. Upon collecting, organizing, and examining gender-disaggregated data, researchers need to identify which gender differences are significant and which of these are most striking and relevant to the themes of the specific research project. The following field example illustrates how such decisions can be made in the field:

Research Example: Deciding which differences make a difference

Researchers studying the importance of indigenous vegetables to household food security, nutrition, and health identify a number of differences between women and men within both the community and household. Activities analysis (Research Tool No.2), for example, reveals that men work as wage labourers on commercial pineapple lands, while women are responsible for a range of domestic and agricultural activities including the collection and cultivation of indigenous vegetables for home consumption and market sale. Due to male migration women are found to have poor access to and control over both land and labour, and to take on new budgetary responsibilities for daily expenses associated with childcare and household maintenance. Other documented differences include women's difficulty in accessing primary health care; the tendency for men to receive more assistance and support from extended family than women; and women's inability to make farm decisions without husbands' approval.

All of these differences are relevant to the research project. Nevertheless, the research team decides to focus on three interrelated issues: (i) the variety of indigenous vegetables and other wild plants collected and cultivated by women, the different use (and exchange) values of such products as foods and medicines, and the skills and knowledge involved in the processing and preparation of foods and medicines by women; (ii) women's perception of health and nutritional issues in the home; and (iii) the concerns and constraints experienced by women regarding access to primary health care. Narrowing their research focus in this way allows the researchers to explore such issues in greater depth given the limits of time and resources.

Revising research methods

Once researchers have established the key gender issues they wish to explore further, research methods may need to be revised. Again, this does not necessarily imply that new methods be substituted for existing ones. Existing methods (such as surveys, questionnaires, and PRA methods) can be revised to focus in on the gender dimensions of particular themes (such as access to primary health care). Surveys and questionnaires can be rewritten to include new issues or questions which the researchers hope to explore, and they can be conducted with different constituent groups.

At this stage of the research, researchers may wish to explore how particular issues (such as access to primary health care) are experienced differently by different groups of women and men. For example, instead of administering surveys to “men” and “women” as homogenous groups, surveys can be conducted with young women, elderly women, women who are single, married, divorced or widowed, women heads-of-household, and so on. In addition to age, marital status, and household headship, researchers may also explore how ethnic identity, and class shape access to resources and services, and how different people perceive their options. Disaggregating “women” and “men” on the basis of other potential axes of difference allows researchers to explore gender issues through multiple lenses.

Although existing research methods can be revised to explore particular issues in greater depth, researchers may also chose to integrate other research methods into the research design. The limitation of surveys, questionnaires, and many PRA methods are their highly structured and targeted nature. Such methods are not designed to capture detail and nuance, and may limit the ability of researchers recognize the interconnectedness of gender issues (such as the linkages between access to labour and the kinds of activities people engage in). More than this, such methods are not suitable for examining broader issues of gender ideology. An examination of gender ideology reveals considerable information about how gender roles and relations are defined within particular societies. Gender ideology is embedded within cultural beliefs, values, and attitudes; is politically charged; and is often fraught with contradiction. At this stage of the research, researchers may wish to experiment with other, more qualitative, methods such as participant observation and semi-structured interviewing (on either an individual or group basis).

3.2.4 Stage III - In-depth Examination of the Significance and Meaning of Gender Differences

Once research teams have established which gender issues they plan to explore in greater depth, researchers need to consider what kinds of information/data they hope to find. At this stage of the research there are four areas of inquiry that can be explored:

I. Gaps in existing data: Researchers may utilize existing or new methods to fill in the gaps of gender-disaggregated data collected during earlier stages in the research process. This may include gathering information on issues already explored but where there are pieces of the data missing, or integrating new participants into the study for whom the research has no preliminary data.

II. Detail, nuance, and contradiction: Researchers may engage in participant observation, semi-structured interviewing, role-playing, and other participatory exercises in order to examine the nuances of women's/men's daily lives or to explore contradiction in the data. The following research example illustrates how such exploratory methods can enable researchers to add on to data gathered at earlier stages in the research process and to situate the data within broader research themes:

Field Example: Exploring detail, nuance, and contradiction

During earlier stages in the research process, researchers collected gender-disaggregated data on the range of activities that women and men do on both a daily and seasonal basis (see Research Tool No.2). Having reviewed the data, the researchers wanted to observe such daily/seasonal activities in order to enhance their understanding of what such activities **mean** to women and men (e.g. the time requirements of activities, the locations where activities are performed, who participates in such activities, and so on). To do this, a researcher accompanied three women and three men (on six separate days) in their daily activities. During time spent with women (for example), the researcher participated in and observed activities which included cooking (processing and preparing foods and medicines), feeding the family, sewing, agricultural work, collecting water and fuelwood, collecting wild plants, going to market, visiting neighbors and family, and prayer and rest periods. Through participation in, and observation of, such activities the researcher gained first hand knowledge and experience of that activity (although admittedly from a very different perspective). Participant observation revealed considerable detail about how activities were performed (e.g. collecting of wild plants is not a separate activity but is done along the roadside on women's way to and from the market), and who helped with particular activities (e.g. young girls assist their mothers with collecting, processing and preparation of wild plants for food and medicine and is the way in which knowledge is passed down from mother to daughter).

Observation also revealed contradictions between cultural ideals and practice. During initial surveys, most men reported that their wives were not involved in any kind of income-generating activities (in fact many women reported the same). However during observation of daily activities it was obvious that women did in fact sell items at the market (such as cooked meals, seeds, and plants collected at roadside). When asked about the apparent contradiction, women responded that if their husbands knew of their earnings that they would take it away or steal it. Many women were also observed to pocket a small portion of the earnings from their husbands' crop which women sell at the market. The market, in this way, was a site of resistance for women.

III. What do particular gender differences mean?

Researchers who have already documented concrete expressions of gender roles and gender relations may be interested in taking their findings a step further. When researchers begin to ask the question 'why do particular gender differences exist' they have reached another stage in the research process and another level of gender analysis. At this stage in the research process, researchers need to look for patterns associated with gender roles and gender relations and the interrelationships between different patterns (e.g. gendered patterns of access to resources, patterns of domestic budgeting, or patterns of labour organization in a household or community, among others). During the process of analyzing patterns in the data, researchers need to begin to think about what social, cultural, and economic dimensions of society contribute to such patterns.

In order to understand the social, cultural, and economic aspects of gender differences, researchers need to recognize that **gender roles and gender relations have both a material and ideological bases and material and ideological implications**. The material aspects of gender roles and relations are based on the allocation of, control over, and benefits from resources and the relationships built around these processes (marital relationships, kinship relationships, patron-client relationships, market relationships). While the material aspects of gendered resource access, allocation, and control are often investigated, the ideological dimensions are less well understood.

People's mobility, their relationships with different kinds of environments, spaces, and resources, and their engagement in different kinds of production are conditioned by their social or gender identity. Gender ideology represents a coherent system of beliefs and values about gender identity and gender relations within a particular society or community¹. In much the same way that ethnobotanists classify the natural world, gender is a classifying principle that codes the social world based on socially and culturally constructed categories or classifications of persons (as well as the classification of particular spaces, and environments as possessing particular gendered qualities - e.g. forests as feminine). Gender represents a spectrum of dense and rich categories which contain both prescriptions and assumptions about the nature, qualities, and capacities of women and men (or the categories of feminine and masculine). They define the social parameters of what different persons can and should do, spaces and environments they can and cannot use, and who they are. For example, women may be socially defined or depicted as mothers, caretakers, and labourers, while men are defined as strong, breadwinners, protectors, and leaders. It is through gender that social roles in the community and household are given practical meaning. Gender is also one of the organizing principles which defines the nature of relations between different people.

Within any society there exists a multiplicity of categories that define social roles and relations. Persons are not only defined by gender. Categories of persons are also based on age, marital and parental status, stages in the reproductive cycle, class, spiritual identity, among others. As women and men progress through biological, social and economic cycles (e.g. with marriage, parenthood, menopause, retirement, and so on), their social identities change. Thus, patterns of access to, control over, and use of resources

¹ Reference to gender ideology as a coherent system of beliefs is not intended to suggest consistency, that is, the absence of ambiguity and contradiction.

are based on flexible, shifting social identities which change over the course of one's life.. For example, in some societies, women who are pregnant or menstruating are not permitted to handle or consume particular plants and foods, or enter particular environments. Thus, patterns of access to and use of resources or interactions with different environments are not a simple matter of gender or sex, but rather are deeply embedded in social and cultural beliefs which code the world and categorize persons in a particular way.

Researchers attempting to analyze social patterns need to look at the fundamental principles which produce such patterns. The material and ideological dimensions of mobility, access to different environments, spaces, and resources, and access to different kinds of production are interconnected domains. This means that researchers need to examine both the material aspects of resource access, allocation, control and use, and the multiple ways in which ideology constructs gender roles and relations. To do this, researchers may employ exploratory (open-ended) methods such as participant observation and semi-structured interviews. Interviews with key informants (local chief, assembly men, husbands and wives, women's groups, and so on) reveal considerable information about the fundamental principles on which a society is organized and coded. Researchers need not ask direct questions about ideology per se, rather they may listen for the words or language used to refer to women's and men's roles and the relationships between them. Researchers need to look at the expressions of ideology within language, and social rules which define categories of persons vis-a-vis access to, control of, and benefits from resources. Participant observation of everyday life, or special social and cultural events will also reveal much about the material and ideological dimensions of gender roles and relations.

IV. What are the implications of gender differences for biodiversity management?

Research is an iterative process. At this stage of research and analysis, researchers need to link the material and ideological aspects of gender roles and relations back to what people do, what they know, the resources they control and use, and their priorities and preferences. Researchers need to analyze how gender roles and gender relations shape the opportunities and constraints experienced by women and men to manage biological resources and maintain sustainable livelihoods.

Researchers need explore to the multiple ways in which gender may be a fundamental principle which classifies, categorizes, orders, and organizes the productive and reproductive activities for which women and men are separately and jointly responsible; the spaces, environments, and resources that they are able to access, control, use, and benefit from; and the bases on which different persons are able to engage in different kinds of production. Biodiversity issues are deeply embedded within all of these gendered domains of activity, access, and responsibility. The nature and extent of people's involvement and participation in biodiversity management depend, for example, on the kinds of environments and resources that women and men control and use (such as forests, rivers, farmlands, roadsides, household gardens). Researchers need to consider the material and ideological opportunities and constraints experienced by different people and the ways they are grounded in gender roles and relations operating at the level of the household, community and state.

3.2.5 Data Interpretation and Analysis : Research as an iterative process

Data collection, interpretation, and analysis are often thought of as three distinct, mutually exclusive steps, in the research process. Data collection is usually seen as a linear process where data collection represented the first stage and interpretation and analysis the last. Research needs to be seen instead as an iterative process:

Research as a Linear Process:	DATA COLLECTION	INTERPRETATION AND ANALYSIS
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Research as an Iterative Process:	DATA COLLECTION (Revision of methods and issues explored)
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INT'N / ANALYSIS

The output produced by gender analysis is most comprehensive and striking when approached as an iterative process. Data collection, interpretation and analysis can be mutually reinforcing if researchers engage in data interpretation and analysis throughout the research process. Preliminary data collection (such as the collection of gender-disaggregated data using a selection of research tools such as those illustrated in section 3.3) needs to be followed by preliminary interpretation and analysis of data collected. Based on preliminary (and ongoing) analysis of the data, researchers are better able to:

- < explore gender issues raised during preliminary data collection in greater detail;
- < make informed decisions about which gender issues/differences are significant and relevant;
- < adapt and revise (and experiment with new) research methods to explore new/other issues;
- < identify apparent trends in the data for further examination and confirmation in field;
- < identify where, and in what capacity, other informants should be included in the research;
- < identify and fill gaps in the data; and
- < identify inconsistency or contradiction in data which needs to be re-examined and clarified.

Engaging in gender analysis as an iterative process enables researchers to remain “in touch” with their own work, and enhance the validity, relevance, and depth of their research output. Each of the research tools illustrated in the next section include a discussion of particular themes and trends that researchers should look for during interpretation and analysis of data.

3.3 A SELECTION OF RESEARCH TOOLS FOR GENDER ANALYSIS

Each tool is organized in the following framework:

Objective - identifies the purpose of the tool and the type of information for which it is best suited.

Data Collection - offers suggestions as to how the tool can be used in collecting gender-disaggregated data, through a variety of methods (e.g. questionnaires, participant observation, individual interviews, focus group discussions, and participatory exercises). Researchers should note that along with being disaggregated by sex, data should be further disaggregated by other variables including class, race, ethnicity, head-of-household, age, religion, and so on, as a means to better understand and document socio-economic and gender dynamics of biodiversity management.

Examples - some tools include examples that researchers can use to collect gender-disaggregated data, including:

- < mapping gendered spaces
- < gender activities chart
- < gender benefits chart

Key questions to consider -

tools include a list of questions and issues for researchers to consider in collecting gender-disaggregated data relation to biodiversity research.

Data Interpretation and Analysis - explores the significance of the tool in understanding and documenting exactly why a rural system functions as it does and the implications gender roles and relations on biodiversity management in a particular context. Researchers are encouraged to move beyond gender-disaggregated data and question the form, significance, and impact of gender roles and relations at the level of household, community, and state.

Research Scenario - some of the tools provide researchers with examples that point to the importance of gender interpretation and analysis of gender disaggregated data. These examples are meant to be illustrative rather than exhaustive and highlight ways in which gender dynamics can shape and have an impact upon biodiversity management in different contexts.

3.3.1 Tool No. 1 Gender and Biodiversity Issues List ²

Objective

To provide researchers with an overview of gender issues related to agro-biodiversity and medicinal plants research and in the analysis of the dynamics of gender relations in agricultural and social systems.

Data Collection

The gender and biodiversity issues listed below can be incorporated into a variety of qualitative and quantitative research methods. The issues can inform the drafting of questionnaires, and interview questions for individuals or focus group discussions. Research can also review these issues prior to engaging in participant observation on the farm, around the household, at local markets, and in forest areas.

The first step in engaging in gender analysis in research is collecting gender-disaggregated data. The issues listed below are largely presented in the form of questions which explore the different roles, rights, responsibilities, obligations, options, and opportunities available to different resource users/managers and how these differ between women and men. Alongside the disaggregation of data on the basis of sex, data should be further disaggregated on the basis of other differentiating social variables such as race, ethnicity, class, age, marital status, household headship and composition and so on. This will enable researchers to better understand and document the range of social/gender dynamics operating at the level of the household, community, and state and role played by such dynamics in shaping the ability of resource users/managers to conserve genetic diversity.

The list below need not be used as a rigid tool as not all issues are necessarily relevant to all SUB-funded projects. The list is meant as a guide to researchers in the field. Researchers are encouraged to draw on those issues from the list that are relevant to and appropriate within a particular context. Similarly, researchers are encouraged to explore gender and biodiversity issues which are not found on the list.

Data Interpretation and Analysis

Beyond the collection of gender disaggregated data, researchers must ask the questions: Why exactly are local gender relations as they are? and What are the implications of the gender divisions of labour, and differential patterns of resource access, allocation, and control mediated by gender, on the options and opportunities available to different resource users/managers to conserve genetic biodiversity in agriculture and medicinal plants.

² Adapted from gender guidelines developed by Yianna Lambrou for SUB, January 1997.

Gender and Biodiversity Issues List

Division of Labour

- < What is the gender division of labour within agricultural activities? Are women's and men's farm activities divided by task, crop, and place?
- < Who has the primary responsibility for post-production activities, namely the selection, processing, and preservation of seed varieties?
- < What criteria are used in seed selection and plant breeding activities? Are the criteria different for women and men, among members of different ethnic groups, among the poor and wealthy?
- < Within the household, who is responsible for the collection of wild plants (such as medicinal plants, indigenous vegetables, herbs, and other plants)?
- < Who is responsible for the processing and preparation plants for food and medicinal uses?
- < Are local varieties of medicinal and edible plants cultivated and maintained around the home? Who is responsible for such activities?
- < What is the gender division of household responsibilities (e.g. childcare, provision and preparation of food, household maintenance etc.)?

Economic Factors

- < Is the community characterized by a low/high degree of socio-economic stratification? What is the particular socio-economic status of participating households/individuals?
- < What employment activities are male/female members involved in (e.g. farming, trading, collection and sale of wild plants, small-enterprise, formal sector employment)?
- < Do women and men engage in any other income-generating activities?
- < Who controls cash derived from specific income-generating activities? How is income used and/or invested? Who makes decisions concerning the household budget?

Resources

- < What productive resources do women/men have access to and control over (e.g. land, labour, tools, equipment, cash/credit, inputs, plants, seeds etc.)?
- < Do women and men have different customary and/or legal rights to different resources (i.e. do men possess rights of ownership while women have rights of use)? What kind of rights do women/men possess for each resource?
- < Do women and men have equal access to common property resources (land, forests, roadsides)? Do women and men have equal rights to use different plant resources within common lands?
- < Are resource uses differentiated by gender? Do women and men have access to and use of different resource products and by-products (e.g. women using the fruit and branches of a tree while men use the trunk of the tree for building or sale)?
- < Is there evidence of conflict over, or resistance to, current rights to resources (or lack thereof) between women and men at the level of the household, community, or state?
- < Are women's/men's rights of access, control, and use of resources commensurate with their labour contribution in productive and conservation activities?
- < What political resources do women/men have access to and control over (e.g. local organizations, NOGS, local and regional government, leadership, education, information)?
- < What kinds of social and political relationships do women/men call upon as a means to access resources (are such channels of access further disaggregated by class, ethnicity, age)?
- < Have women (and men) engaged in strategies to expand their channels of access to resources (e.g. joining a local women's group, investing in social or market relationships etc.)?

Time Management

- < How much time do women/men spend daily on agricultural activities, the collection of plants and plant/tree resources, other income-earning activities, locating and maintaining household or nearby sources of medicinal and other use-value plants, fetching water, providing and preparing food, preserving and storing food supplies, caring for children etc.)?
- < How are different activities prioritized regarding allocation of time spent? What activities are given priority over others? How do the priorities of women and men, poor and wealthy, young and old differ? What are the justifications given for such priorities?
- < As the social and economic responsibilities of women in the household and community expand, how do different women (disaggregated by class and age) reorganize their daily activities to accommodate new responsibilities? What activities are given less attention? What is the impact of this?

Knowledge, Expertise, and Technology

- < Given the gender division of labour by task, crop, and place (and the gender division of roles, rights, and responsibilities) what kinds of agricultural and environmental knowledge do women/men possess?
- < What kinds of local expertise in plant breeding and genetic seed and variety experimentation, selection, and conservation exist? Who possesses expertise in such areas (women/men, poor/wealthy, old/young)?
- < What are the criteria used in seed selection and plant breeding activities? Are the criteria different among women and men, among members of different ethnic groups, among the poor and rich?
- < In the case of medicinal plants, who is responsible for, and has knowledge and expertise of, the collection, cultivation, preservation, and use of different med plants?
- < How are knowledge and expertise in plant/ seed varieties and conservation strategies passed down through time?
- < What kinds of local or externally derived technologies are used in farming, and in the experimentation with local (and externally derived) seed varieties, the location and collection of wild plants, and other related activities?
- < Have the technologies that are used changed significantly over time (e.g. hoe and cutlass to mechanized plough)? What has been the reason/justification for the change?
- < Are technologies equally accessible to women and men? Do women and men use same technologies?
- < Do women and men have equal access to extension services, and other forms of external assistance (e.g. NGOs)? Do women and men have equal access to new technologies (new seed varieties etc) introduced by extension services and other agencies?

Information and Community Networks

- < Who has access to new information on methods of plant breeding, genetic conservation and farming more generally?
- < What channels of access to information and technology exist for women/men and poor/wealthy?
- < Do local cooperatives, and other formal and informal networks or groups exist? Who are the members? Why have members formed or joined such groups (ie. what were their expectations of the group(s))? Have such expectations been met?
- < Do women and men rely on different kinds of formal and informal groups, networks, and relationships for access to information, technology, and productive resources?
- < What NGOs, CBOs or other associations assists local producers (e.g. inter-farming group cooperation, labour groups, public/private partnerships)?
- < What is the gender composition of staff and leadership?
- < Who are these services targeted towards (e.g. women/men, heads-of-households, children)?

Government and Legal Structures

- < Have government departments and agencies worked to implement policies and programs which support local people, organizations, and cooperatives?
- < Are there government mechanisms in place which are working to identify and support the multiple roles of local men and women in the maintenance of genetic biodiversity and sustainable conservation strategies?
- < Is there a commitment toward cooperation between government departments working in the areas of agriculture, environment, and social equity?
- < Are there mechanisms in place at the regional and national levels of government to issues of gender equity?
Are there currently programs and infrastructure in place to encourage and support local initiatives in biodiversity conservation?
- < Are there cultural norms/legal frameworks in place which limit women`s/men`s access to resources and opportunities?

3.3.2 TOOL No. 2 Gender Activities Analysis

Objective

To explore the range of activities for which women and men are responsible and how such gendered activities are associated with biodiversity management.

Data Collection

Analysis of gender-specific activities can inform the drafting of questionnaires and interview questions for individuals and focus group discussions. Participants can identify those activities in which they are actively or partially involved in and the role that such activities play in biodiversity management. Along with being disaggregated by sex, data should be further disaggregated on the basis of other variables such as ethnicity, class, household headship, marital status, age, and so on. Attention should be given to the time spent on each activity, how often it is performed, and the location of the activity.

Researchers can also review these activities prior to engaging in participant observation on the farm, in or around the household, and at the market. To further capture the gender-specific activities of households, researchers can observe how specific activities are carried out. This enables researchers to take their investigations one step further, enabling them to examine how a certain activity is performed (cultural practices), what levels of technology (varieties, tools, machinery) are being used, the location of activities (kitchen, roadside, household garden, forest), whether activities are done separately or jointly by women and men, and the constraints to performance.

Key Questions to Consider

- < What is the timeline of particular gender activities (ie. are activities performed at specific times during a season, intermittently over the course of a season, on a daily basis)?
- < Do women/men engage in, or rely upon, social networks to perform key activities (such as plant collection, seed sharing, plant processing)?
- < Are particular activities embedded within broader cultural practices and/or beliefs?
- < How does the gender divisions of activities differ between men and women-headed households?
- < To what extent does the gender divisions of activities correspond to cultural perceptions of gender roles (e.g. women as mothers/childcare providers, men as breadwinner)? In what ways do gender divisions of activities contradict cultural norms regarding gender roles and responsibilities? Do such contradictions suggest a process of social/cultural change?

Gender Activity Analysis Chart: Activities Related to Biodiversity Management

	Activity	Women/girls Men/boys	Location	Time	Example Notations
Farming (disaggregate by crop-type)	land preparation nursery planting/ transplanting weeding* fertilizing harvesting hauling	mostly men women & girls women & children women men mostly women men & women	farm around home home to farm farm farm farm farm to home		*Many weeds have edible and/or medicinal qualities and are collected by women for home consumption/use.
Food/ Plant Processing & Preparation	harvesting of crops collection of edible & medicinal plants* processing of food crops & wild plants into edible form cooking* processing & prep. of med plants administering medicines	mostly women women & men** women & women's groups women & girls local healers & women local healers & women	farm roadside, forests around home around home home home	 year round year round	 *Many plants have both food medicinal uses in the home. **species dependent *Many wild plants are edible only through special cooking procedures.
Marketing	sale of edible & medicinal plants to local/regional markets & buyers*	women & men**	local / regional markets parts of	intermittent throughout rainy & dry control the season.	* Buyers are more commonly women. ** women and men sell and the income from differ-plant species.
Seed Selection & Preservation	on-farm selection seed drying* seed storage seed exchange	women & girls women & girls women village / market women	farm/home around home rooftops** around home / local seed bank seed fairs village nurseries cultural events	harvest post-harvest dry season dry season year round	 *sometimes involves cooking **seeds dried in a variety of places depending on seed type (shade/sunlight, hot/warm/cool)
Interpretation and Analysis					

Further interpretation and analysis of gender-disaggregated data will reveal the interconnectedness between the activities of women and men and issues of biodiversity management. In order to better understand the options and opportunities available to different producers biodiversity management it is crucial to examine the gender division of labour (ie. what activities are women/men engaging in). The gender division of labour mediates the allocation of responsibility for particular farm and off-farm tasks on the basis of gender, and in turn, the **different forms of knowledge** that women and men hold regarding, for example, processing of plant materials into edible and medicinal products, the different properties and uses for edible and medicinal plants, among many others. Gender analysis of farm, household, community, and market-oriented activities will enable researchers to integrate gender-specific knowledges of biodiversity into research, to identify gender-specific interests and needs, and to target project-related assistance and support on that basis. The following research scenario illustrates how activity analysis may be applied in a particular context:

Scenario No. 2

An initial survey of ten households reveals that women and men are engaged in a wide variety of activities related to farming, seed selection and preservation, and the collection, processing, preparation (and in some cases marketing) of edible and medicinal plants. Researchers initially assumed that special times were set aside for the performance of such critical activities, however further examination of such activities through discussions and observation uncovered, among other things, the way in which women and men integrate such activities into their daily lives. Rather than having a particular time of day set aside to go out to collect plants for home consumption and medicinal use, women collected edible and medicinal plants, found along the roadside, on their way to and from local markets. Since many local “weeds” also have edible and medicinal uses many weeding activities on the farm were also opportunities for women to collect wild plants for home use. Thus, many collection activities were in fact incidental and linked to other daily work which reduced women’s overall daily time and resource constraints. Detailed information was also collected regarding issues of seed selection and preservation. Seed selection and preservation was found to be a very complex process involving not only women’s activities in seed selection and preservation around the homestead, but also women’s maintenance of village nurseries and the organization of annual seed fairs, both of which facilitated seed exchange among village members and between the village and other local settlements. Cultural events also promoted seed exchange among local producers at the beginning of each planting season.

3.3.3 TOOL No. 3 Mapping Gendered Spaces³

³ Adapted from Lightfoot, Feldman, and Abedin, 1994.

Objective

To examine the different spaces, places, and resources used by women and men and the personal and use value that women and men attach to such spaces.

Data Collection

Mapping of gendered spaces can be done with individual women and men or small groups (small groups should be gender-based). The purpose of the exercise can be twofold: (1) to map out spaces which are thought to be associated with dominant socio-cultural categories of “women” and “men”, (best done in a group of women and men) and (2) to map out spaces used by individual women and men. This will enable the research to draw out contradictions between local ideology about gender roles and gender spaces (ie. what should be) and daily gendered practice (ie. what is). To begin the exercise, researchers can assemble two groups of 8-10 people, one group of women and one group of men (include both young and old). The group of men can be asked to map out the spaces, places, and resources used by women, and the group of women can be asked to map out the spaces, places, and resources used by men. This exercise will reveal local social ideals regarding gender roles and use of spaces. The next part of the exercise is designed to examine gender roles and use of space as it happens in everyday life. As an introduction to individual gender mapping it is suggested that the researcher ask the participant to walk with them through the village and to other significant spaces such as the local market(s) rivers, and streams, allowing the participants to point out, and comment upon, key places, features, structures, and resources important to them. This will help researchers to identify key questions to ask and issues to cover. Within the mapping exercise, the researcher can begin by asking the participant(s) to identify a key feature (such as their home or nearby road). The participants are then asked to identify and draw key places/spaces that are essential (or peripheral) to their daily activities, and places/spaces which they perceive to be important to “men”/“women” and to themselves personally. The participants should not be interrupted unless they have stopped drawing, in which case questions may be asked to prompt the participant.

During map drawing the researcher needs to give attention not only to what spaces and features are represented but how they are represented. For example, are certain features being drawn on a larger scale (indicating relative importance)? Are spaces which were designated as “men's” (in group discussions) represented on women's maps?

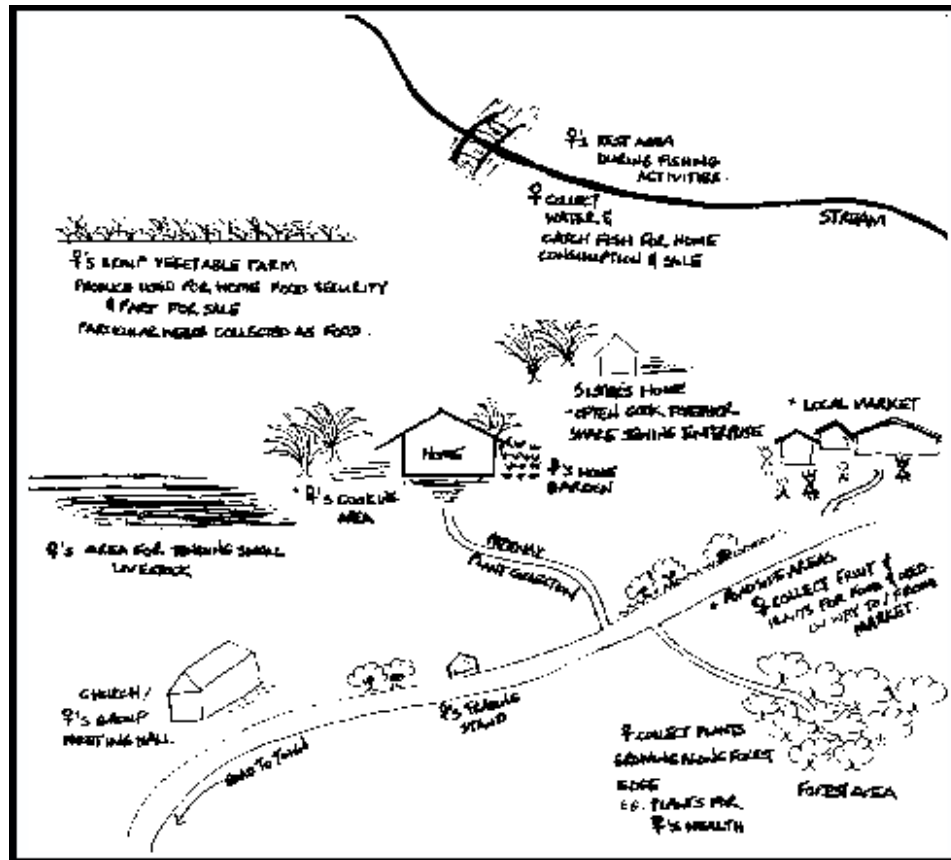
Maps may include the following spaces, resources and features:

- < specific rooms/ areas in and around home
- < meeting places for women's groups and farmers associations
- < churches, mosques
- < homes of family and/or friends
- < residence of village healer
- < local rural, peri-urban, and urban markets
- < other trading areas or exchange relationships
- < areas around the homestead
- < agricultural lands (include acreage and crop type)
- < common property resources (such as rivers and forests)
- < other water sources (wells, water pumps)
- < sources of agricultural inputs (seeds, fertilizers, pesticides)
- < sources of credit (include formal and traditional credit sources)
- < centers of information (local NGOs)

Interpretation and Analysis

Mapping gender spaces will enable researchers to explore and analyze dominant socio-cultural categories of “women” and “men” and the multiple ways in which gendered uses of space conform to or contradict such expressions. During analysis of maps and map-related discussions and observations the researcher should look for the spaces, places, and resources which women and men make use of, what those spaces mean to women/men (e.g. do roadsides mean food security as they provide much of the food materials, aside from cultivated crops, for home consumption), and which spaces meet particular personal, practical and strategic gender needs. In regions which are occupied by different ethnic groups, researchers can also analyze the ways in which different spaces are used by members of different ethnic groups and the extent to which different ethnic groups attach different meanings to such spaces.

Gender Mapping



Key Questions to Consider

- < What spaces, places, and resources are thought to be associated with the normative categories of “women” and “men” (ethnicity may also play a significant role here)?
- < What spaces, places, and resources are actually used by the participant? Do they conform to, or contradict, normative ideals associated with gender roles and gendered spaces?
- < What is the significance of spaces, places, and resources mapped by the participant?
- < What does the map reveal how the participant perceives her/his place and role in the community?

3.3.4 TOOL No. 4 Gender Benefits Analysis

Objective

To explore the gendered aspects of medicinal and edible plant collection, cultivation, processing, and preparation, and the multiple gender uses of different local plant species.

Data Collection

Gender benefits analysis will provide a strong basis for personal interviews and focus group discussions. This method reveals considerable information regarding the types of forest, farm, roadside and homestead products and by-products that people collect, process, use, and market. Data collected needs to be disaggregated by gender, as men and women tend to have differential customary access to particular resources and resource by-products, and use such resources towards multiple ends (e.g. varieties of home use, sale to local and regional markets). Researchers need to be mindful of the gender divisions of roles, rights, and responsibilities negotiated at the level of the household and community, as they shape the different tasks that men and women are responsible for, and the resources each requires to meet these responsibilities.

Gender benefits analysis can focus in on specific uses and benefits of different edible and medicinal plants. Particular attention needs to be given to the range of different plants that women and men use, their different use values, and how they are processed and by whom. Researchers can explore why women and men use the species they use (ie. the benefits they receive from particular species) by examining the attributes that women and men ascribe to different plant resources (nutrition, medicinal use and so on). For example, what medicinal plants are used by women to deal with minor childhood illness, or to reduce pain and discomfort associated with childbirth or menstruation? How are med plants prepared depending on their use? Who holds the knowledge of plant preparation and knowledge of how such medicines should be properly administered? What plants are commonly sold to local/regional markets, and by whom are the collected and sold?

If more than one ethnic group makes use of a particular region, it may be useful to explore which medicinal and edible plants are collected and the use value ascribed to different plants on the basis of ethnicity as well as looking at indigenous classification/taxonomy of plants as an indicator of the different forms of local knowledge shaped by factors of ethnicity.

During data collection it is crucial to not only examine the range of local knowledge which exists regarding edible and medicinal plants but also to explore the ways in which men and women of different ethnicity perceive their roles, for example, as mothers, caregivers, breadwinners, and healers in the household and community, the rituals surrounding collection and processing of plants, preparation of foods and medicines, and administering of medicines, and their perception and beliefs surrounding the environment as the providers of food and medicine (e.g. by listening to local stories and songs and examining local folklore). This information will be crucial during interpretation and analysis of data.

Benefits Analysis Chart: Choice and Use of Local Species by Gender (Sample)

Local Name	Part Used	Use(s)	Collection	Collect by	Location
(Plant A)	Leaves	Cooked in soups and stews - highly nutritious	May - August	Women	Roadside pathways
(Plant B)	Leaves, twigs Seeds	Mat making/selling Oil	Aug - Nov	Women/girls Women/boys	Forest
Mushroom	Whole mushroom	Prepared in stews (by women)	March - Nov	Women	Forest floor
(Plant C)	Leaves	Used / sold as pain reliever (sold by men)	May - July	Men	Forest
(Plant D)	Leaves, bark	Processed and used by women for relief of menstrual discomfort & in large quantities may be used to induce miscarriage	April - July	Women	Grows wild among bean crop.
(Plant E)	Leaves, buds	Used to remedy by men for hypertension	May - Sept.	Women/men	Forest
Tree (A)	Fruit Tree trunk	Prepared in meals / sold Used for building	June - Dec. Dec. - March	Women Men	Roadside

Interpretation and Analysis

Using a benefits analysis chart as a point of departure within interview sessions and focus group discussions allows for in-depth examination and analysis of the different kinds of knowledge pertaining to local biodiversity and biodiversity management. Such an examination will reveal crucial information about who (ie. women/men, children) is responsible for the collection, processing, use, and in some cases sale of particular resource products/by-products, such as medicinal plants, and consequently the kinds of local knowledge that women and men and members of different ethnic groups possess with regard to med plant collection, processing and use. This in turn will enable researchers to identify the different kinds of biological, chemical, and environmental knowledge of different species and varieties, and knowledge of the potential use, processing and market value of such resources that different individuals possess. The different forms of knowledge need to then be situated within local/cultural perceptions of the environment (and perhaps forests in particular), and the ways in which individuals perceive their role as collectors and providers of food and medicines.

Scenario No. 4

Researchers are interested in examining the extent to which local people rely upon forest systems for survival and the different forest products and by-products that collectors use/sell. Initial survey data suggests that both women and men collect, use, and in some cases sell forest products/by-products. Deeper examination reveals however that women and men collect and make use of different plants and plant materials not all of which are found on the forest floor. Men commonly collect and sell commercially valuable medicinal plants from forest areas and cut down small trees for use as firewood and for building and construction. Women collect many of the plants and long grasses used as food and fodder (and in many cases weaving) along the roadside on the way to and from the market, and during weeding activities on the household farm (as well from forested areas). These activities relate to women's responsibilities as the preparers of food and medicine to deal with childhood illnesses, and enable women to provide for their own practical medical needs (e.g. plants collected to relieve pain associated with menstruation and childbirth, and induce miscarriage). Detailed information was also gathered about specific knowledge and skills required for the processing and preparation of different plants for use as foods and/or medicines. In many cases, it is only through food processing and "cooking" (for the most part the domain of women) that food becomes edible. Likewise women possess the specific processing and preparation skills required to convert particular plants into useable and effective forms as medicines.

3.3.5 TOOL No. 5 Gender-Disaggregated Matrix Ranking⁴

Objective

To enable researchers to identify and examine plant species and varieties used locally, the use value (and preference) ascribed to different species or varieties on the basis of gender and class, the social and economic reasons supporting farmers/collectors preference of particular species over others, and gender-specific local knowledge of local and newly introduced plant varieties.

Data Collection

Matrix ranking can provide a point of departure for personal interviews and focus group discussions. Although they can be done on an individual basis, ranking sessions are best conducted in groups of 4 to 6 people including the discussion leader(s). If the researcher is working with a local organization, it is advised that the main group be sub-divided into smaller groups to ensure that respondents participate equally in the trials. Ensure that both women and men participate in individual and group sessions equally where possible, and that women and men of different age and socio-economic standing are represented in the trials. For best results organize groups composed of (a) only women, (b) only men, and (c) women and men together.

Matrix ranking is a procedure designed to elicit information regarding local preferences for particular varieties of cultivated/collected crops/plants. Where agricultural varieties are the subject of inquiry, it may be useful to have both local and newly introduced varieties in the matrix as a means to elicit information about farmers preferences between local and newly introduced varieties, and the indicators by which local producers measure quality. The varieties to be included in the exercise may be chosen by researchers prior to the exercise (to suit specific research priorities), or may be chosen with farmers collectively.

Begin by identifying WITH farmers the various characteristics which farmers used when making comparisons between different varieties (e.g. taste, plant height, resistance to bird/pest damage, yield, marketability etc.). A list of at least 15 characteristics should be finalized (although others may be revealed as the trials proceed, and should also be included). Once the indicators have been determined the participants can be arranged into small gender-based and gender-mixed groups. Each group should be given a large sheet of paper to be placed on the ground. The selected characteristics should be listed down the side of the paper, and the names of the three main varieties found in the area can be listed across the top. Using beans (or other small objects) as markers, have each group discuss how they would score each variety between one and five for each characteristic. The score is then recorded by placing the accorded number of beans in the proper grid cell. If members of the group disagree with the ranking the subject of disagreement should be discussed until a consensus is reached. The researchers should make note of details surrounding the disagreement, who was it that disagreed (ie. was the disagreement among women and men, poor and wealthier women), and the basis on which individual(s) disagreed.

⁴ Adapted from Drinkwater, 1993; Manoharan, Velayudham, and Shunmugavalli, 1993.

Sample: Millet Matrix⁵

Characteristic	Variety A (local name)	Variety B (local name)	Variety C - Improved (Scientific designation)
colour 4			
early maturity 5			
plant height 3			
type of head 4			
range of soils 10			
it can be grown in			
yield 8			
taste: beer 10			
nutrition 10			
cooking time 9			
threshing 1			
grinding 2			
meal quality 6			
storage 9			
medicinal 5			
marketing - 7			
locally			
marketing - 7			
city A			
marketing - 7			
city B			
OVERALL			

⁵ Adapted from Drinkwater, 1993.

Interpretation and Analysis

Once all indicators have been scored, an overall (or general) ranking of the three varieties should be obtained (you may also wish to ask for a general ranking of the three varieties at the beginning of the exercise as a means to examine how perceptions and preferences change over the course of the exercise). As a means to cross-check this ranking, ask farmers to give the indicators values ranging from values ranging from 10 to 1. This allows a total score to be obtained for each variety by multiplying the value of the indicator by the variety's ranking for that indicator, and then summing the total.

The matrix exercise will reveal the comparative advantages of each of the three varieties under scrutiny as perceived by local producers. During data analysis the researcher needs to examine how the perceptions and preferences of women and men, rich and poor, young and old differ, and the possible explanations for such differences (e.g. the gender division of labour). An examination of the indicators themselves, will reveal considerable information about the priorities of different local producers (e.g. nutritional, medicinal, agronomic, and income-earning priorities).

3.3.6 TOOL No. 6 The Triads Test⁶

Objective

Like matrix ranking, the purpose of the triads test is to elicit information about gendered local knowledge of local plant species and varieties which are locally cultivated and/or collected. The Triads Test is designed to examine local perceptions regarding the quality and use value of particular species/varieties through multi-level comparative analysis.

Data Collection

The information gathered during the Triads Test may be used as a point of departure for personal interviews and focus group discussion, and can be used to compliment information gathered during matrix ranking trials. Trials can be conducted with individuals or small groups of two or three persons. It is important that women and men, of different age and socio-economic background, participate in the trials as their experience with, and knowledge of, particular species and varieties will depend upon their roles and responsibilities within the household and community.

The Triads Test is a basic elicitation procedure in which farmers are presented with “elements” - mostly concrete objects such as rice varieties, grain-legume seeds, weeds, or pests - in sets of threes and asked to discriminate by pairing two on the basis of similarity and isolating the third on the basis of difference. Respondents are then asked to explain the ‘construct’ underlying their discrimination, and where appropriate, other objects under consideration are scaled according to this particular construct. The test is repeated until combinations amongst a given set of objects are exhausted and a complete classification of the objects under scrutiny personal to the respondent are created. The following two field examples will explain the trial process further:

Scenario No. 5

Five varieties of grain legume seeds are arranged in a row on the ground. The discussion leader takes three of the varieties (seeds A, B, & C) and arranges them side by side in front of the respondent. Asked to pair two on the basis of similarity and to isolate the third on the basis of difference, the respondent takes two of the seeds (A & C) and separates them from the third (B). The discussion leader then asks the respondent to explain why seeds A & C were thought to be similar and the third (B) different. The respondent replies that the paired seeds are both drought resistant, while the third does not grow well without regular rainfall. Drought resistance was the construct through which the farmer ascribed value to particular seed varieties. Keeping seed B in front of her/him, the discussion leader introduces seeds D & E, and asks the respondent to again pair two seeds on the basis of similarity and isolate the third on the basis of difference. The respondent suggests that varieties B & D were both used for household consumption whereas variety C for the most part was sold by women at the market. The test repeated until combinations amongst the five grain legume seeds were exhausted and a complete classification of the seeds personal to the respondent was created.

⁶ Adapted from Richards, 1979.

Scenario No. 6

Five plant species, known to be collected by local people from a nearby forested area for medicinal uses are arranged in a row on the ground. The discussion leader takes three of the varieties (plants A, B, & C) and arranges them side by side in front of the respondent. Asked to pair two on the basis of similarity and to isolate the third on the basis of difference, the respondent takes two of the plants (B & C) and separates them from the third (A). The discussion leader then asks the respondent to explain why plants (B & C) were thought to be similar and the third (A) different. The respondent replies that the paired plants commonly grow near a particular kind of tree in the forest, whereas the third plant, isolated on the basis of difference, grows along the outer edge of the forest. The respondent further elaborates that the third plant had very different soil requirements than the two paired plants. In this case geographical and agronomic factors were the basis of the construct developed by the respondent. Keeping plants B & C in front of the respondent, the discussion leader introduces plant D and asked the respondent to again pair two plants on the basis of similarity and to isolate the third on the basis of difference. The respondent suggests that plants C & D are both used by women to cure minor illnesses in children such as diarrhoea, while plant B is used as a pain reliever for menstrual cramps and headache. In this case, medicinal use and the gender of the user was the construct through which the respondent identified and ascribed value to particular med plant varieties. Keeping plant D in front of the respondent, the discussion leader (re)introduces plants E & A, and asks the respondent to again pair two plants on the basis of similarity and to isolate the third on the basis of difference. The respondent pairs plants A & E, suggesting that both have medicinal use as a pain reliever which are collected and sold by men to local traders for which they receive considerable income. Plant D, again, was used by women for medicinal purposes in the home. In this case the constructs of the respondent included the medicinal value of plants, the use of plants for home/market purposes, and the gender of the user. The test repeated until combinations amongst the five forest plants were exhausted and a complete classification of the plants personal to the respondent was created.

Once gender-disaggregated data has been collected it can be organized in chart form (see below). Organization of data in this way will allow the researcher to compare the charts of different respondents, and enable in-depth analysis of difference. You may wish to consider the following key questions during data analysis:

- < How do the constructs, or indicators, used to compare and contrast different plant and seed varieties vary between women and men, poor and rich, and among different ethnic groups? Do differences in constructs reflect more fundamental differences associated with the gender division of labour and the gender divisions of roles, rights, and responsibilities at the level of the household and community?
- < Do women and men, poor and rich, have the same kinds of access to, and responsibility for, the different plant and seed resources under examination? How does this affect the kinds of knowledge they possess regarding such resources?
- < What criteria are used when selecting (med) plants and seed varieties?
- < What kinds of knowledge of plant and seed varieties do local people possess (e.g. knowledge of biological, chemical and physical properties of local varieties, knowledge of capabilities and limitations of local varieties, and local use value for different plants products and by-products)?
- < Is local knowledge gender and/or class-specific?
- < What local varieties do women and men, poor and rich, prefer? Why?

Classification of local forest-based plant varieties (example 2)

SEED CONSTRUCT	Var. A <i>(local name)</i>	Var. B <i>(local name)</i>	Var. C <i>(local name)</i>	Var. D <i>(local name)</i>	Var. E <i>(local name)</i>
Short cooking time/ long cooking time	0	1	1	1	0
Food/non food	0	1	1	0	0
Income/no income	1	0	1	0	1
Drought resistant/ not resistant	1	1	0	1	0
Women`s use/ Men`s use	0	1	1	1	0
Weed/not weed	1	0	0	0	1
Medicinal/ not medicinal	1	0	1	1	1

1 = yes/similarity

2 = no/difference

Interpretation and Analysis

Triad`s testing will provide researchers with considerable information regarding the kinds of sale and use value ascribed to particular edible and medicinal plants and seed varieties, and how perceptions and use of different resource products and by-products varies among resource users/managers on the basis of gender, class, ethnicity and other axes of difference. The Triads Test will reveal the different forms of knowledge that local people possess regarding the functioning and maintenance of agro-ecosystems; the biological, chemical, and physical properties of plant/tree resources; the comparative social and economic use values ascribed to different plant and seed varieties; and the potential for advancement in conservation strategies aimed at protecting local biodiversity. Data collected needs to then be situated within the broader context of the gender division of labour and the gender divisions of rights, roles, and responsibilities which mediate access to, control over, and use of resources and local/cultural perceptions of the environment (e.g. socio-cultural constructs around the notions of land and forest) and of the plants/seeds themselves.

3.4 GENDER MONITORING AND EVALUATION IN BIODIVERSITY RESEARCH

Objective

To provide SUB team members with an overview of gender issues to be considered in assessing the implementation of gender analysis within an agrobiodiversity or medicinal plants research project.

Format

Gender guidelines for monitoring and evaluation are presented as questions and are organized along eight key indicators. Researchers will be provided with these gender monitoring and evaluation guidelines prior to or during the initial project design and formulation so as to inform the project for its duration. SUB team members will refer to the below list of gender evaluation guidelines in assessing how exactly gender analysis has been implemented by the project team and how effective this process has been on enhancing overall research results.

The below list is not inclusive and should not be used as a rigid tool. Not all issues are necessarily relevant to all SUB research projects. SUB team members and research partners are encouraged to draw on those issues from the list that are relevant to and appropriate within a particular context. Similarly, SUB team members and research partners are encouraged to issues for monitoring and evaluation which are not found on this list.

Gender Monitoring and Evaluation Guidelines

for Agrobiodiversity and Medicinal Plants Research Projects

1. Human resource development

- < Has the research team been able to adequately address relevant gender issues?
- < Has the research team increased their knowledge of and skills regarding gender?
- < Were workshops, seminars and other forms of information exchange organized to build capacity among team members and research partners?
- < Was there consultation or collaboration with a gender resource person(s)? In what capacity? Was this useful?

2. Institutional capacity building

- < Has the institution improved in its ability to adequately address gender issues?
- < What specific factors or initiatives have allowed for this improvement? What obstacles/constraints exist? How can such constraints be managed?
- < Has the institution held any training or workshops related to gender?
- < Has there been a cross-fertilization of ideas with other research partners?

3. Effective local partnerships

- < Has the project facilitated linkages with local women`s/men`s organizations? In what capacity?
- < What resources were provided by such partnerships which enhanced the capacity of all partners to engage in gender analysis?
- < Have other types of professional networks been established as a means to enhance capacity through the cross-fertilization of ideas, interests, and initiatives?

4. Effectiveness of multi or interdisciplinary approaches and gender analysis

- < What specific issues have been explored through gender analysis?
- < What methods were used to collect gender-disaggregated data and examine gender dynamics?
- < Has gender been approached as a discipline in its own right or has gender been used as an analytical tool that cuts across all disciplines?
- < What systems/networks are in place to encourage the research team to monitor and evaluate the gender impacts throughout the project cycle and following project completion?
- < Has gender analysis been an iterative process?
- < How has gender analysis informed the conclusions and recommendations stemming from the research?

5. Validity and significance of results

- < Are new strategies and technologies in biodiversity management customized to different

- gendered needs, interests, rights, and responsibilities?
- < Have the impacts of newly introduced skills and technologies been examined using gender analysis?
- < How have the options and opportunities available to women and men been advanced (or narrowed) by new strategies in plant breeding and genetic conservation?

6. Dissemination of project results

- < Will the research results be disseminated? How exactly? With whom will the research results be shared?
- < Will efforts be made to share gender research specifically? With whom (e.g. NGOs, policy-makers, other communities, local organizations, other researchers)? In what form?
- < Are there mechanisms in place at various levels of government to address issues related to gender and biodiversity? How will research results be shared with such departments, institutions, and agencies ?

7. Impacts, policy changes and sustainability of these

- < How will research results be used to generate policy alternatives which will enhance local access to genetic resources and community benefit sharing? Where will gender considerations be crucial?
- < Will research results work to enable local inputs to be made into policy processes (including policy formulations and local feedback)? Where will gender considerations be crucial?
- < Can the research results be used to strengthen the position of women and men within informal contractual arrangements?

8. Project/program management issues

- < Has there been consistent and effective project monitoring throughout the project development cycle?
- < Have monitoring activities included an evaluation of the ability of project team members and research partners to engage in gender analysis and present and potential gender impacts?

4.0 TRAINING OF TRAINERS: LITERATURE RESOURCES

The following literature sources are available through Women, Ink. Books:

77 UN Plaza
New York, New York 10017 USA
Internet: <http://www.womenink.org>

Jones, Ken. Imaginative Events for Trainers: A Trainer's Sourcebook of Games, Simulations, and Role-Play Exercises. 1993. 310 pages. ISBN 0-07-046590-8 WE362Z.

Nilson, Carolyn. Team Games for Trainers. 1993. 322 pages. ISBN 0-07-046588-6 WE191Z.

Nilson, Carolyn. More Team Games for Trainers. 1997. 283 pages. ISBN 0-85598-267-5 WE187Z.

Parker, A. Rani. Another Point of View: A Gender Analysis Training Manual for Grassroots Workers. 1993. 106 pages. ISBN 0-912917-41-5 WE027Z.

Parker, A. Rani, et al. Gender Relations Analysis: A Guide for Trainers. 1995. 142 pages. ISBN 1-888393-00-9 WE244Z.

Williams, Suzanne. The OXFAM Gender Training Manual. 1994. 634 pages. ISBN 0-85598-267-5 WE187Z.

The Pan-Commonwealth Training Module on Women and Natural Resource Management.

The Overview. 1996. 68 pages. ISBN 0850-92-489-8 WE325Z.

A Manual for the Africa Region

1992. 176 pages. ISBN 0-85092-465-0 WE326Z

A Manual for the Asia Region

1996. 144 pages. ISBN 0-85092-481-2 WE327Z

A Manual for the South Pacific Region

1996. 141 pages. ISBN 0-85092-464-2 WE328Z

A Manual for the Caribbean Region

1996. 116 pages. ISBN 0-85092-486-3 WE329Z

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